TYPE OF REPORT: Quarterly

TIME PERIOD: Jul-Sept, 1997

NAME AND LOCATION: Alan Strahler, Boston University

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ABSTRACT -- KEY POINTS

V@ coding again required a major effort, including the complete restructuring of the BRDF/Albedo code. For BRDF/Albedo, efforts to fit BRDFs to Amazonian AVHRR data continued. In Land Cover/Land-cover Change, Central America received major attention, including the preparation of a prototype classification from the parameter database.

TASK PROGRESS

BRDF/Albedo Product

Algorithm development
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* The MOD43 version 2 code was in its core written in this period. It is a complete reworking of the version 1 code, transforming it into an operational algorithm that will run much faster (ca. 100 MFlops/16 days). In July the BRDF model handling was instated, in August the i/o sections. Jobs remaining are metadata, SDS attributes and quality control. This coding was a resource drain this quarter.

* Parallel to the coding of the main algorithm there was nontrivial coding of an input data simulator (required since the upstream algorithms required for testing are not operational yet) and of tools for dumping HDF file contents in product-specific ways. These will be essential in off-line testing of the algorithm.

* The code building the multiangular inout database is now no longer called MOD43A but has received the MODLAND designation MOD_PRAGG.

* At a MODLAND-SDST meeting in July the version 2 deliveries were coordinated and the metadata requirements were updated.

Scientific advances
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* Ongoing: The processing of 2 months of 4km AVHRR data over South America (1987, 1988) begun in the previous period has progressed to the stages of cloud clearing and bulk atmospheric correction. Finally, the MODIS BRDF/albedo algorithm was applied to the multiangular data set obtained to derive per-pixel BRDFs. Evaluation of the results of this algorithm prototyping activity is pending.

* A. Lyapustin of GSFC visited for discussions of BRDF issues and gave a talk.

* W. Lucht met with Australian scientists in Melbourne and at

CSIRO/COSSA in Canberra to discuss BRDF model testing and validation as there is a very good level of BRDF work going on in Australia; several Australian investigators are using the MODIS BRDF/albedo model.

Validation activities
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* Evaluation of the albedometer data and hemispherical photography taken in the previous period during the PROVE field campaign at Jornada was begun. The hemispherical photos were digitized and a classification by cover component type undertaken. Field notes were transferred to electronic formats.

* The existing surface radiation networks BSRN and SurfRad were investigated for the potential role in MODIS albedo validation.

Publication/talks activity
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* A major paper describing the MODIS BRDF/albedo algorithm was published in the Journal of Geophysical research: (Wanner et al., JGR 102, 17143-17162, 1997).

* A paper on expected retrieval accuracies from the MODIS BRDF/albedo algorithm received reviewer's comments and is being revised.

* A paper describing the 1km AVHRR-GOES8 prototyping of the MODIS BRDF/albedo algorithm over New England was printed in the IGARSS'97 conference proceedings

* A contribution was submitted for a joint paper by MODLAND for IEEE TGARS describing the BRDF/albedo algorithm and prototyping results

* W. Lucht (formerly Wanner) was made an Associate Team Member, replacing Curtis Woodcock

* W. Lucht attended the IAMAS/IAPSO conference in Melbourne in July to deliver to a community of numerical weather and climate modelers a talk on the 1-km albedo product from MODIS.

* W. Lucht attended the ENAMORS workshop in Finland in September which was designed to plot science strategy for the European Union and EOS-EU contacts, and gave a talk on the MODIS BRDF/albedo product.

Land Cover/Land-Cover Change Product

* Coding: During this reporting period, we focused primarily on the at-launch V2 code for monthly aggregation of landcover input data, test site development, land surface parameter extraction from test sites and algorithm testing.

* Classifiers: We continued our work with advanced technology (AT) classifiers: neural nets, decision trees and adaptive classifiers.

* Test Sites: We continued the development and testing of a land surface parameter database derived from Landsat TM and ancillary sources, especially for one of our regional test sites, Central America. We conducted a workshop of regional vegetation experts in Nicaragua to develop test sites for Central America.

* Algorithm Development: We continued research on neural net classifiers focusing on operational processing scenarios utilizing the Central America databse. We continued the processing of AVHRR, TM and ancillary data for this regional test site and the development of a land surface parameter database.

Participation in MODIS Activities
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* IGBP-DIS Landcover Working Group Meeting; Toulouse, 8-9 July 1997 (Strahler)

* EDC DAAC-Boston University Meeting; Boston University; July 1997

* Modis Science Team Meeting; 28-30 July 1997; GSFC

* PROARCA-CAPAS Central America Vegetation Working Group Meeting; Managua, Nicaragua; 13-15 August 1997 (Muchoney)

* Meeting at EROS Data Center, Sioux Falls, SD; 18-19 August 1997 on DAAC and land cover issues (Muchoney/Strahler)

* MODIS/U. of Maryland Landcover Meeting, College Park, MD 16-17 September 1997

* Presented a seminar on global landcover mapping and MODIS at a Nature Conservancy/World Bank Seminar (Muchoney); 18 September 1997

ANTICIPATED ACTIVITIES DURING THE NEXT QUARTER

* Continued development of V2 code

* Continued processing and analysis of field data from Jornada campaign.

* Clean up and classification of final Central America prototype database.

PROBLEMS/CORRECTIVE ACTIONS

* None required